DOCUMENT RESUME

ED 299 636 CS 506 426

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TITLE A Comparison between PSI-Based and Self-Contained Formats of Instruction in the Introductory Speech Communication Course.
PUB DATE 4 Nov 88
NOTE 27p.; Paper presented at the Annual Meeting of the Speech Communication Association (74th, New Orleans, LA, November 3-6, 1988).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Academic Achievement; *Communication Apprehension; Communication Research; *Communication Skills; Higher Education; *Introductory Courses; *Self Esteem; *Speech Communication; *Teaching Methods
IDENTIFIERS *Personalized System of Instruction; Speech Communication Education

ABSTRACT

The value of the basic course in speech has been affirmed in several surveys, and indications are that a high priority should be given to keeping the introductory course a quality course. In order to examine the aspects of the basic course, such as class size, interaction, and instructional format, a study assessed differences between two instructional methods in a basic speech communication course: a modified Personalized System of Instruction (PSI) and a self-contained format. Communication skills, communication apprehension, self-esteem, and academic achievement in, perceptions about, and satisfaction with the course were compared. Data were collected from subjects, 813 undergraduates enrolled in the basic speech communication course (107 were enrolled in two PSI-based sections and the remaining 706 were enrolled in 28 self-contained sections of the basic course), by pretest questionnaire, posttest questionnaire, and collection of grades from instructor's record books. Using t-tests to compare means and mean change scores, the PSI-based format was found to be more effective than the self-contained format. Comparing these data with an earlier study designed to compare the PSI-based method with a more traditional lecture-recitation format, the self-contained approach appeared to be a better alternative than the lecture-recitation for teaching this course, but the PSI-based model was still clearly superior to both alternatives. (Three tables of data are included, and 32 references are appended). (MS)

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# A Comparison Between PSI-Based and Self-Contained Formats of Instruction in the Introductory Speech Communication Course

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CS506426

A paper presented at the annual convention of the Speech Communication Association, November 4, 1988, New Orleans, Louisiana.



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Abstract

This study assessed differences between two instructional methods in a basic speech communication course: a modified Personalized System of Instruction (PSI) and a self-contained format. Communication skills, communication apprehension, self-esteem, and academic achievement in, perceptions about, and satisfaction with the course were compared. Using t-tests to compare means and mean change scores, the PSI-based format was found to be more effective than the self-contained format. Comparing these data with an earlier study designed to compare the PSI-based method with a more traditional lecture-recitation format, the self-contained approach appeared to be a better alternative than the lecture-recitation for teaching this course, but the PSI-based model was still clearly superior to both alternatives.

**A Comparison Between PSI-Based and Self-Contained Formats**

**of Instruction in the Introductory Speech Communication Course**

"The basic course in speech remains a vital component of American higher education in the mid 1980's, reflecting a societal trend to prepare students for skilled oral presentation of ideas in a competitive society." This last sentence in the fourth and newest SCA-sponsored nationwide investigation of the basic course (Gibson, Hanna, & Huddleston, 1985, p. 290) reaffirms the importance of communication training for college students. In addition to highlighting the value of the basic course for students, the authors go on to stress the value of the basic course to the discipline. "Respondents to this survey indicated that the basic course plays a significant role in their student credit hour generation" (p. 283). Such statements remind us that a high priority must be given to keeping this course a quality course. However, keeping the basic course a quality one can be a difficult task.

The multiple-section basic course in speech communication is caught in a number of contradictions. First, most large basic courses must be both a service course to the university as a whole (which generally involves meeting expectations set by people outside of the discipline) and an introduction to the field of speech communication (which involves providing content that is necessary for upper-division courses in the field). The dual purpose makes satisfying the needs of this diverse population challenging. Second, more and more basic courses are being held accountable in their certification of competency, which is an expensive and intricate process. At the same time, financial pressures, increasing enrollments in major/minor courses, and the availability of less expensive staffing alternatives discourage departments from devoting financial resources and senior faculty to instruction in the basic course. The Gibson et al. study states that the basic course is taught mostly by junior faculty (graduate teaching assistants, instructors, and assistant professors) and that the quality of instruction is a major concern. A final

contradiction pertains to class size, which was cited as another major concern in the Gibson et al. article, leading the investigators to state "that 'small class size' in the basic course appears to be crucial to the individuality of instruction and its interactive nature" (p. 282). The ideal model calls for small sections of the basic course to allow for maximal student interaction, but the financial benefits gained from high student:instructor ratios call for maximizing class size. The results of the Gibson et al. survey seem clear: the discipline needs quality instruction that meets the societal demand for enhanced communication skills and that instruction should take place in a setting conducive to individuality and interaction. The financial implications are also clear: departments must maximize learning while minimizing costs.

Many professionals in our field would argue that we already have effective basic courses. According to Gibson et al., most class sizes range from 18-30 students, and 75% of the respondents in their sample were generally satisfied with the basic course. Yet the debates rage on, especially where large, multiple-section basic courses are concerned: Can junior faculty and, more questionably, GTAs provide effective instruction in the basic course? What instructional format(s) should we follow? What is the maximum class size we should use? While agreeing that quality should not be sacrificed and that interaction is essential to this quality, it is hard to deny the fact that small class sizes are very costly. Likewise, the use of junior faculty, temporary instructors, and GTAs in both Ph.D. and M.A. programs provides the least expensive form of staffing; if quality and interaction are not sacrificed, the use of such instructors in multiple-section basic courses seems essential to the overall health of departments. While the goals of quality instruction, increased interaction, and cost-effectiveness may be clear, instructional methods that would allow all three to be achieved may be more elusive.

In the past ten years, an innovative teaching technique has been applied to basic courses in a variety of disciplines with considerable success: the Personalized System of Instruction (PSI). (For a detailed description of the PSI model and documentation of its effectiveness as an instructional technique, see Keller, 1974; Keller & Sherman, 1974, 1982; Sherman, 1974; Sherman, Ruskin, & Lazar, 1978; and Sherman, Ruskin, & Semb, 1982.) Developed by Keller, the system has five defining characteristics which differentiate it from other teaching/learning

models: 1) mastery learning, 2) self-pacing, 3) a stress on the written word, 4) the use of student proctors, and 5) the use of lectures to motivate rather than to supply essential information (Keller & Sherman, 1982, p. 22).

Some disciplines rely heavily on PSI as a preferred method of instruction in introductory courses, including psychology, physics, mathematics, and chemistry (Boylan, 1980). PSI has not been used extensively in the speech communication field, however. Boylan's 1980 study did not list speech communication as a discipline that frequently used PSI as an instructional model. Although the Gibson et al. survey does not offer specific information concerning the use of PSI, it does report that only 15% of the schools in the sample responded that they used the traditional mass lecture/small performance system while 85% "did not." (Gibson et al., p. 284). While this finding may leave one to speculate about the possible use of PSI by those departments that did not report using the more traditional model, lack of reported research suggests that basic speech communication courses have not incorporated PSI in any significant way.

Despite this seeming lack of widespread acceptance, some schools have begun experimentation with a modified PSI approach (e.g., Buerkel-Rothfuss & Yerby, 1982; Gray, Buerkel-Rothfuss, & Yerby, 1986; Seiler, 1982, 1983; Seiler & Fuss-Reineck, 1986; Taylor, 1986). Much evidence exists to support the idea that a modified PSI approach may help speech communication courses keep the quality and even increase the interaction with/among students while becoming cost-effective (e.g., Gray, 1984; Hursh, 1976; Kulik, Kulik, & Cohen, 1979; Seiler, 1982, 1983; Sherman, Ruskin, & Semb, 1982; Taveggia, 1976). Ongoing research conducted by Gray et al. (1986) has shown a modified PSI approach to instruction in the basic speech communication course to be a very effective learning format. (For more information concerning some of the applications of PSI in communication courses, see Berryman-Fink & Pederson, 1981; Fuss-Reineck & Seiler, 1982; Hanisko, Beall, Prentice, & Seiler, 1982; Hanna & Gibson, 1983; Heun, Heun, & Ratcliff, 1976; Scott & Young, 1976; Staton-Spicer & Bassett, 1980; and Taylor, 1986.) In a comparison of two instructional models, lecture-recitation and PSI-based, the PSI-based system was equal to or more effective than the lecture-recitation in four areas. Specifically,

> 1) PSI-based students and instructors felt more satisfied with the overall quality of the course; 2) PSI-based students achieved the same or better grades on their final speeches, final examinations, and course grades; 3) PSI-based students reported feeling less anxious in communication situations after taking the course than did their counterparts; and 4) PSI-based students reported the same or more overall growth in a variety of communication skills (Gray et al., 1986, p. 124).

These data, arrived at through two studies spaced a semester apart, provide evidence that a PSI-based approach could be very useful for speech communication. In particular, PSI-based formats for instruction appear to offer advantages in each of the three areas discussed earlier: quality, cost-effectiveness, and interaction. The quality of the instruction was evidenced by the often superior grades, heightened satisfaction with the course, and overall increase in perceived skill improvement. The cost effectiveness of the PSI-based system was irrefutable: PSI-based sections averaged 70 students per section versus an average of 23 students per lab/recitation section. The interaction component, while seemingly contraindicated by the large class size, also improved in the PSI-based sections, due mostly to the use of small subgroups facilitated by undergraduate teaching assistants (UTAs). Previous research has shown that the use of UTAs gives students personal contact superior to other models and increases the individual interaction and overall participation of each student (Gray et al., 1986; Seiler, 1983).

Of course, the PSI-based model also has its drawbacks. Such tasks as the enormous amount of pre-planning, tracking the progress of so many students, and providing sufficient time for repeating assignments require high levels of organizational and managerial skills. In addition, overseeing, assisting, and in many ways training the UTAs requires strong pedagogical, supervisory, facilitation, and interpersonal skills (e.g., Gallup cited in Sherman, 1974; Johnson cited in Sherman et al., 1982; Keller & Sherman, 1982, pp. 42-45; and Smith & Weitzer cited in Sherman et al., 1978, pp. 77-87). Obviously, dealing with a classroom of 70 students greatly complicates classroom dynamics. Together, these demands tend to make the PSI-based approach to teaching more difficult for first-semester, inexperienced GTAs and, perhaps, even junior faculty, than the more traditional lecture-recitation format. This difficulty is

heightened when the GTAs and/or junior faculty are completely responsible for the instruction and evaluation in a course section. Indeed, the six years of experimentation with a PSI-based model by these researchers have proved this claim to be accurate in our experience. In addition, there is the problem of recruiting a sufficient number of motivated, reliable UTAs. Using the typical ratio of one UTA for each group of ten students (Keller & Sherman, 1982, p. 19), 40 UTAs would be needed in a course that enrolls 400 students. In a course where UTAs have substantial responsibilities (e.g., processing exercises, evaluating assignments, coaching presentations, facilitating group discussions, etc.), Smith & Weitzer (cited in Sherman et al., 1978, p. 84) encourage that the ratio be no higher than one UTA to every five to seven students. In a basic course that utilizes UTAs in positions of responsibility, the course that enrolls 400 students could require as many as 80 qualified UTAs. In situations where the basic course enrolls 1000 or more students per semester, sufficient numbers of qualified UTAs simply may not exist. Even if a large number of qualified UTAs could be found, the problem of training and compensating these UTAs in some way for their contribution remains. Course credit can be given to the UTAs instead of money (Keller & Sherman, 1982, pp. 34-35), but the need for faculty to train the UTAs can still place substantial time and financial demands on a department.

A solution to the dilemma created by the obvious pedagogical advantages of PSI and the difficulties involved in implementing the PSI model in larger basic courses is to incorporate as many of the desirable features of PSI as possible while minimizing the disadvantages. Such an attempt forms the basis for this research.

## The Self-Contained Model: A Contrast with the PSI-Based Model

This study represents a second step in an ongoing process of attempting to identify the "ideal" model for teaching the basic hybrid course in speech communication. The course examined for this research is a highly standardized, multiple-section course designed to meet specific competency-based behavioral objectives which are made known to the students through a standardized syllabus given during the first week of the course. In the previously-cited research (Gray et al., 1986), two instructional models were compared: lecture-recitation and PSI-based.

The PSI-based model seemed clearly superior yet not feasible to use in the multiple-section basic course involved for two major reasons: the course regularly enrolls between 1000 and 1300 students per semester which would require recruiting and training 100 to 260 qualified UTAs (one UTA per every five to 10 students), and the heavy reliance on inexperienced GTAs makes the total implementation of a PSI-based model a risky undertaking. Therefore, a third model was developed. Labelled the "self-contained" model, this third alternative retained as many of the PSI-based characteristics as possible while minimizing the managerial skills needed by the GTAs and the number of UTAs required.

The self-contained format examined in this study incorporated a significant number of the characteristics utilized in the PSI-based format: 1) mastery learning was incorporated by allowing students to repeat some written assignments and all unit tests until competency was achieved; 2) self-pacing was used by allowing students to complete the unit tests in advance; 3) a stress on the written word was provided through the textbook, handbook, and study guide materials (created especially for this course) which were the only bases for the tests; and 4) lectures were used to motivate rather than to supply essential information. There were only three differences between the self-contained format and the PSI-based format: the use of student proctors (UTAs) which is one of the five "defining characteristics of PSI", the size of the class, and the ability of the PSI-based students to repeat their first two speeches until a minimum competency level was achieved.

The self-contained sections were taught by GTAs, met for approximately three hours per week, and had an average class size of 33. The GTAs must complete an intensive training course which meets for two weeks prior to the beginning of classes and continues to meet throughout the semester; this training helps to maintain a standardization of course content across sections. The PSI-based sections were taught by regular faculty who routinely teach sections of the basic course, met for approximately three hours per week, and had an average class size of 68. PSI-based sections were subdivided into smaller groups of six or seven members, as encouraged by Smith & Weltzer (in Sherman et al., 1978, p. 84) when students are assigned to UTAs who take on significant responsibilities in the course. Each of these small groups was led by a UTA who served as a facilitator for the group, leading exercises,

answering questions, and providing tutoring in areas of weakness. UTAs also helped with some record-keeping, occasionally led class activities, and evaluated the ungraded speech assignments. UTAs received training for their role through a course taken concurrently with this UTA assignment. UTAs were not used in the self-contained sections.

Students were arbitrarily assigned to sections spread throughout the day without regard for the instructional format being used. Students were assigned to sections via a computer program based on times available in their schedules during the registration period. Students who selected sections during the schedule revision period had no advance information regarding the instructional formats and so selection was made solely on times available and/or time preference. PSI-based sections were offered both in the morning and in the afternoon to offset any potential time bias.

Most assignments in the two formats were the same. Both groups took four 25-question unit tests, and students were required to achieve a specified level of mastery (C+ or 76%) before a grade was recorded. All four tests were available on the Monday of the second week of classes and each had a specified ending date (usually four weeks after the ending date of the previous test). All unit tests were taken at the University Testing Center during out-of-class hours; ten forms of each test were created following a list of 25 learning objectives each so that tests could be repeated and students could learn from their mistakes. All students took a common comprehensive final exam which could not be repeated. In addition, students in both groups completed a written personal communication analysis, an audience analysis paper, and a sentence outline for their second speech; the outline assignment was repeated until competency was reached (defined as a B or better for the assignment).

The performance component of this course was different in the two formats. In the self-contained sections, three speeches were given in front of the entire class and the GTA: speech 1 was ungraded, speech 2 was worth 15% of the final grade, and speech 3 was worth 20% of the final grade. Speech 3 was an adaptation of speech 2, based on a description of a hypothetical audience provided by the instructor. None of these speeches could be repeated. In the PSI-based sections, the first two speeches were given in front of small audiences with two UTA evaluators. Each student was required to achieve a grade of B or better on both of these speeches before being allowed to give speech 3; the speeches were repeated until

this level of mastery was achieved. However, no grade was recorded for the first two speeches. The third speech, which was also an adaptation of speech 2 for a specific audience, was given in front of a small group and the professor and was worth 35% of the final grade. This speech could not be repeated.

## The Research Project

### The Research Questions

Two goals formed the basis for this study: 1) to compare the PSI-based format of instruction with the self-contained format, and 2) to assess the degree to which self-contained sections represent an improvement over the lecture-recitation format by comparing ratings in the self-contained sections from these data with those in lecture-recitation sections reported in the previously-published study (Gray et al., 1986).

The comparison between the PSI-based and self-contained instructional formats involved the following variables: perceived change in communication skills and the impact of the basic course on such change, change in communication apprehension, change in self-esteem, academic achievement in the course, and satisfaction with the instruction in and the quality, difficulty, and usefulness of the course. Since the self-contained model more closely parallels the PSI-based model than does the lecture-recitation format, it was expected that fewer significant differences in the quality of this instructional model would be found when compared to the PSI-based model but that the direction of the differences would continue to favor the PSI-based method. Finally, it was predicted that the mean scores for change, attitude, and achievement would be higher for the students enrolled in the self-contained sections in 1985-86 than they were for the students in the lecture-recitation sections in 1982-83.

### Method

#### Sample.

Data were collected from undergraduate students enrolled in the basic speech communication course during the fall semester of 1985-86. Two questionnaires were administered, the first during the second week and the second during the last week of classes. Slightly under one thousand students completed the first questionnaire; a similar number completed the second questionnaire. Social security numbers were matched for

pretest and posttest data, and only those subjects who completed both waves of the testing were selected for the final sample. In all, eight hundred thirteen students (just over 80% of all students enrolled in the course) were included in that sample: one hundred seven were enrolled in two PSI-based sections and the remaining seven hundred six were enrolled in twenty-eight self-contained sections of the basic course. Students enrolled in evening sections of the course were not included in the sample due to possible confounding factors associated with the once-per-week meeting format or the evening meeting time.

Over 60 percent of the students in the sample were freshmen, 25 percent were sophomores, and the remaining 15 percent were split between juniors and seniors. Because the course is part of a competency requirement for the university, the sample was considered to be representative of the campus as a whole. Literally all possible majors and minors were represented in the sample.

With regard to gender, females outnumbered males in the sample five to three. The overrepresentation of females was probably caused by some combination of the following factors: 1) the ratio of females to males was approximately 60:40 at the university at the time of data collection; 2) females may have been more conscientious about attendance and filling in the questionnaires, thus being dropped from the sample in smaller numbers; and/or 3) females may have selected this communication course over the five other possible competency courses while males may have been represented more heavily in those other courses.

To assure comparability of sections at the outset of the study, Chi-square tests were computed for the following variables from the pretest data: class standing, grade expected in the course, approximate GPA, previous public speaking/forensic experience, and previous enrollment in the course. No significant differences were obtained. Similarly, t-tests were used to compare PSI-based sections with self-contained sections on perceptions of communication competence, expectations for the course, communication apprehension, and social self-esteem. No significant differences were identified from the pretest data, leading the researchers to conclude that there were no systematic differences between groups at the beginning of the study.

Procedure.

Data collection was accomplished in three phases: pretest

questionnaire, posttest questionnaire, and collection of grades from instructors' record books. Data were collected by classroom instructors; the researchers did not teach sections of the basic course during 1985-86.

The first questionnaire contained 91 items and was divided into five sections: 1) items measuring perceived communication competence (Self-Perception of Communication Abilities Scale); 2) items measuring students' expectations for the course to improve their communication competence (Perceived Influence of the Course on Communication Abilities Scale); 3) McCroskey's (1970) Personal Report of Communication Apprehension Scale; 4) an adaptation of the Janis-Field Feelings of Inadequacy Scale (Robinson & Shaver, 1973); and 5) demographic characteristics and expected grade in the course. The scales and items chosen reflected the expected behavioral outcomes for the course as stated in the standardized course syllabus.

The Self-Perception of Communication Abilities Scale (SPCA) was adapted from the earlier study by Gray et al. (1986). This scale measured self-perceived ability in a range of communication skills: overall communication competence, listening, interpersonal interaction, nonverbal communication, use of language, conflict management, and so on. Students responded to a series of statements such as "I am a competent listener" using a five-point Likert-type scale (1 = strongly agree; 5 = strongly disagree). All sixteen items were summed and divided by sixteen to create this scale, with a low number indicating a high degree of self-perceived communication ability. Alpha reliability for this scale was .90.

The Perceived Influence of the Course on Communication Abilities Scale (PICA) was also adapted from Gray et al. (1986). The pretest items for this sixteen-item scale measured the degree to which subjects expected taking the course to improve their personal communication abilities (alpha reliability = .94). For the pretest, subjects responded to a series of future-oriented statements such as "I expect to become a more competent listener as a result of taking this course" using a five-point Likert-type scale (1 = strongly agree; 5 = strongly disagree). A low score on the pretest PICA scale indicated a perception that taking the course would improve the individual's communication ability.

McCroskey's 20-item Personal Report of Communication Apprehension (PRCA-20) scale was used to assess students' apprehension about giving speeches prior to practicing that ability in the course (McCroskey, 1970;

Powers & Smythe, 1980). Students responded to a series of statements about speaking/communicating situations such as "I feel relaxed and comfortable while speaking." Items were coded so that a low score on this scale indicated a low level of communication apprehension (alpha reliability for the PRCA in this study = .95).

The adaptation of the Janis-Field Feelings of Inadequacy Scale (FIS), a widely-used measure of social self-esteem (Robinson & Shaver, 1973), was included to measure the impact of improving communication skills on self-esteem. Again, students responded to a series of statements about self-perceptions such as "I can make decisions confidently." A high score on this scale indicated high self-esteem. The alpha reliability for this scale was .94.

Finally, demographic data and grade expectations were collected to check for similarities of students across groups. In particular, seven characteristics were measured: class standing, gender, grade expected in the course, GPA, prior experience with course content, other communication courses taken, and whether or not the student had enrolled in but not completed the basic course in a previous semester.

The second questionnaire was administered during the final week of classes and contained the same scales as in the pretest: the SPCA, the PICA, the PRCA, and the FIS. For the posttest, items on the PICA scale were rephrased from future tense, "I expect to become a more competent listener as a result of taking this course," to past tense, "I have become a more competent listener as a result of taking this course." Consequently, the posttest PICA measured the degree to which the course was credited for improvement (or lack thereof) in students' communication skills, a slightly different measure than the expectations extracted from the pretest PICA. The alpha reliability for the posttest measure was .94; alpha reliability for the entire combined scale was .92. Also included on the posttest questionnaire were questions about the final grade expected in the course, overall rating of the course, and ratings of the course in terms of usefulness, difficulty, and the degree to which the course met expectations. Finally, all students were asked to rate their instructor's knowledge of material, ability to convey information, concern for students, effort, grading, and overall teaching ability. These evaluations were summed into a scale measuring general attitude toward the instructor (ATTINST). Students in PSI-based sections answered the same sort of

questions about their UTAs. In all, the second questionnaire contained 106 items.

Grades for all assignments common to both formats (final speech, videotape assignment, speech outline, audience analysis paper, final exam, and final course grade) were gathered from records and grade books submitted by the instructors. Because the university uses a 12 point grading scale, all grades recorded fell within a range of 1 point (E) to 12 points (A).

Analyses.

Descriptive statistics were computed for each of the individual items in the SPCA and PICA scales before summing those items into scales. As in the previous phase of this research, change scores were selected as the unit of comparison whenever possible, because this type of assessment was in keeping with the changes called for in the course behavioral objectives. In addition, use of the change scores helps to control for the range of attitudes and capabilities students bring to a basic course. In all cases, scores for $T_2$ were subtracted from scores for $T_1$. T-tests were computed to assess pretest differences and posttest differences for all groups and also to measure within-group and between-group differences for all dependent variables. One-tailed t-tests were used to test for significant differences between groups on several of the dependent variables, based on the prediction that PSI-based sections would produce higher satisfaction, higher change, and better final grades. Significance levels were set at $p \leq .05$.

Results

Not tabled are results of t-test analyses run to examine changes in SPCA, PICA, PRCA, and FIS by the group of students as a whole. Behavioral objectives for the course call for improvement in competence, decreases in apprehension, and enhancement of self-esteem, leading the researchers to predict these changes as a result of taking the course. In both formats of the course, students indicated increasing their levels of competence (SPCA scale) between the beginning and ending of the semester; the significance level for this improvement was p=.000, one-tailed. Not expected were the very consistent increases in mean scores between the pretest and posttest on the PICA scale, indicating lower levels of perceived influence of the course (the posttest measure) than expectations for contributions of the course on improving those skills (the pretest

measure). Apparently, students had high expectations going into the course and they did feel that they improved significantly, but they did not credit the course with their improvements when it was over (p=.000). With regard to communication apprehension (PRCA), students in both groups reported a significant decrease on this scale at the end of the course (p=.000, one-tailed). Finally, students in both groups reported increases in social self-esteem from the beginning to the end of the class (p=.008, one-tailed). Overall, behavioral objectives for the course were met; the question to be answered was whether or not they were met more successfully in the PSI-based sections than in the self-contained sections.

Table 1 presents results of the t-test comparisons for the four scales. In particular, mean change scores were compared between the PSI-based and self-contained sections of the course for SPCA, PICA, PRCA, and FIS. One-tailed tests were used for these comparisons, based on the prediction that students in the PSI-based sections would view the course more favorably (SPCA), indicate higher levels of influence from the course (PICA), show larger decreases in communication apprehension (PRCA), and show larger increases in self-esteem (FIS).

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Insert Table 1 about here

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The results were consistent with three of these expectations. Students in the PSI-based sections reported nearly two times more improvement in their communication abilities than did students in the self-contained sections, resulting in a significant difference of $p \leq .001$. Likewise, students in PSI-based sections credited the course significantly more for those improvements than did students in the self-contained sections ($p \leq .01$), although neither group reported levels of influence at the end of the course that were as high as their expectations during the first week of classes, resulting in the negative change scores. Also as predicted, students in the PSI-based sections reported a significantly larger decrease in communication apprehension ($p \leq .05$). Of the four scales, only the self-esteem measure (FIS) did not result in a significant difference between the two groups.

In Table 2, comparisons are reported for attitude toward instructor (ATTINST) and course grades: final speech, videotape analysis paper, audience analysis paper, sentence outline, final exam, and final course

grade. Because ATTINST and grades on assignments were reported on the final questionnaire only, mean scores were used as the unit of analysis for these t-tests. Again, one-tailed significance levels are reported, based on the prediction that PSI-based sections would result in higher levels of satisfaction and higher levels of success in the course. Also included on this table are t-test results for grade expectations on both the pretest and posttest, evaluations of the course, perceptions of difficulty of the assignments, and perceptions of overall usefulness of the course to the student's life. PSI-based sections were expected to report higher grade expectations at the end of the course, higher evaluations of the course, and higher overall perceptions of the usefulness of the course. No differences were predicted for perceptions of the difficulty of assignments.

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Insert Table 2 about here

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As expected, students in PSI-based sections reported significantly more positive attitudes toward their instructors and received significantly higher grades on the final speech, videotape analysis paper, audience analysis paper, and sentence outline. Means for PSI-based grades indicate that most students received grades of B+ on these assignments; most students in the self-contained sections received grades in the B range. This combination of grades resulted in significantly higher grades in the course for students in PSI-based sections. No significant differences were reported for grades on the final exam; means for both groups fell in the C range.

Comparing means on grade expectations, it appears that, although students in both groups expected to earn grades in the B range at the outset of the course, a greater proportion of PSI-based students expected to earn As and Bs in the course by the posttest. Similarly, students in the PSI-bsed sections rated the course more highly, felt more strongly that the course met their expectations, and perceived greater usefulness for the speeches and the course overall than did students in the self-contained sections. No significant differences were obtained for perceptions about difficulty of the course assignments or difficulty of the course overall.

Finally, Table 3 presents a comparison between mean change scores for the SPCA, PICA, PRCA and FIS scales collected in 1985-86 and data collected for those four scales in the same course in 1982-83 (Gray et al., 1986, p. 121). The numbers in the 1982-83 table have been converted to allow direct comparison by dividing the mean change score by the number of items in each scale. Two formats were compared in the earlier study: PSI-based sections with lecture-recitation sections. Only two significant differences were reported: 1) communication apprehension declined more in PSI-based sections, and 2) self-esteem increased more in PSI-based sections. Comparing changes between the two data sets, it is apparent that perceived communication competence (SPCA) improved to a greater degree in the present study in both formats of the course. Similarly, the course was given less credit for those improvements by students in the 1985-86 sample than by students in the 1982-83 sample (PICA). Changes in communication apprehension and self-esteem scales appear to be very consistent with changes in those variables in the earlier study. Comparing the self-contained sections with the lecture-recitation sections, self-contained sections appear to have produced improvements on all measured variables except for PICA (which declined for both groups in 1985-86). In summary, then, self-contained sections appear to have shown improvement over the traditional lecture-recitation model for teaching the basic course, but the PSI-based model produced the most satisfactory results overall.

Insert Table 3 about here

## Implications

The results obtained from this study continue to point to PSI-based classrooms as being superior to other models for teaching the basic course in speech communication. Although it was predicted that movement to self-contained sections with many of the same features as the PSI-based sections would reduce the discrepancies between the PSI-based and the "regular" sections of the course, that expectation was not supported by the data. While self-contained sections show more positive outcomes in the 1985-86 study than lecture-recitation sections did in 1982-83, the

PSI-based sections seem also to have offered more positive results to students in 1985-86 than they did in 1982-83 probably as a result of continued improvements in course materials and assignments. Although the outcomes in the self-contained sections are certainly positive, with students generally agreeing that the course was worthwhile and demonstrating learning as a result, PSI-based sections consistently fared better.

Of course, the applied nature of this research requires caution in interpreting the reported results. Graduate teaching assistants taught the self-contained sections of the course; experienced faculty members taught the PSI-based sections of the course. Differences in expertise of instructor may have accounted for some of the differences identified between PSI-based and the other sections of the course. Similarly, the large number of GTAs as opposed to the very small number of PSI-based instructors may have influenced the results. One almost certainly can assume that the faculty teaching PSI-based sections were well-qualified for the task while at least one or two of the GTAs would be rated as marginal or even poor instructors. Without the ability to control for teaching ability and style, such variables are left to chance in the overall equation.

On the other side of that caution, it should be noted, however, that past experience with grades and final evaluations in this course demonstrates that regular faculty tend to grade assignments lower than new graduate assistants and that they tend to be held responsible by students for the problems with the course while GTAs are not. The lack of significant difference between groups on perceptions of difficulty and the tendency for students in PSI-based sections to achieve higher grades adds some support to the assumption that repeating assignments and functioning within a PSI-based framework contribute to students' success, regardless of instructor.

It is also necessary to note that faculty do only a small portion of the "teaching" in PSI-based sections. Undergraduate teaching assistants handle much of the activity processing, coaching, and interaction that underlies this model; faculty present descriptions of course assignments, handle general questions about the unit tests, lecture, and supervise the UTAs. This use of UTAs is stressed in the PSI model and was found to be a significant influence on perceptions of satisfaction in the Gray et al. study

(1986) and in other reported research (e.g., Keller & Sherman, 1982, p. 50; Born & Herbert cited in Sherman, 1974, p. 33). Therefore, the students well may be reacting to the quality of teaching of their UTA since that is the person they interacted with most often. This possibility would lead to the speculation that the PSI-based format, in actuality, was taught by less well-trained and experienced instructors (UTAs) than were the self-contained sections (GTAs).

Clearly, if attainment of course objectives is a measure of success of a course, the self-contained sections examined in this study provide a favorable format for instruction and provide a more effective format than did the lecture-recitation format. They do not, however, provide a format equal to the pedagogical advantages of the PSI-based approach. Because the use of UTAs has demonstrated importance as an element of the PSI-based model, it seems reasonable to conclude that the lack of UTAs in the self-contained format may be a reason that this format does not attain results comparable to the PSI-based approach. Inclusion of a limited number of UTAs into these sections might help to alleviate some differences, while still keeping control over the problems of training UTAs and locating qualified students to fill this role for so many sections. If nothing else, this study clearly demonstrates the effectiveness of a PSI-based approach to teaching sections of the multiple-section basic speech communication course. The PSI-based approach used continued to show advantages in the concerns of quality, cost-effectiveness, and interaction cited earlier. If large basic courses are to optimize learning while minimizing the disadvantages associated with the PSI-based approach, continued field experimentation is warranted.

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TABLE 1

t-tests of Mean Change Scores for SPCA, PICA, PRCA and FIS

| Scale | PSI-Based (n=107) Mean Change | Self-Contained (n=706) Mean Change | df | t-value |
|---|---|---|---|---|
| Self-Perceptions of Communication Ability (SPCA) | 0.62 | 0.36 | 751 | 5.20*** |
| Perceived Influence of Course on Communication Ability (PICA) | -0.40 | 0.58 | 761 | 2.47** |
| Personal Report of Communication Apprehension (PRCA) | 0.40 | 0.30 | 767 | 1.87* |
| Janis-Field Feelings of Inadequacy Scale (FIS) | -0.11 | -0.08 | 680 | -0.64 |

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$

TABLE 2

t-tests of Means for Course Grades and Attitude/Perception Variables

| Dependent Variable | PSI-Based (n=107) Mean | Self-Contained (n=706) Mean | df | t-value |
|---|---|---|---|---|
| Attitude toward Instructor (ATTINST) | 1.69 | 2.27 | 795 | 6.65*** |
| Final Speech Grade | 10.09 | 8.64 | 803 | 6.51*** |
| Videotape Analysis Grade | 9.96 | 8.93 | 801 | 4.59*** |
| Audience Analysis Grade | 9.99 | 8.94 | 800 | 4.05*** |
| Sentence Outline Grade | 10.16 | 8.95 | 802 | 4.75*** |
| Final Exam Grade | 6.47 | 6.55 | 800 | -0.25 |
| Final Course Grade | 9.45 | 8.01 | 808 | 6.24*** |
| Grade Expected at $T_1$ | 2.06 | 2.25 | 795 | 0.11 |
| Grade Expected at $T_2$ | 2.38 | 2.90 | 795 | -6.53*** |
| Rating of the Course | 2.46 | 2.93 | 804 | -5.33*** |
| Degree to which Course Met Expectations | 2.66 | 2.96 | 807 | -2.57** |
| Difficulty of Assignments | 2.57 | 2.53 | 806 | 0.46 |
| Difficulty of Tests | 1.95 | 1.91 | 805 | 0.44 |
| Difficulty of Course Overall | 2.56 | 2.47 | 804 | 1.24 |
| Usefulness of Videotape Assignment | 3.20 | 3.19 | 805 | 0.12 |
| Usefulness of Speeches | 1.84 | 2.22 | 805 | -3.84*** |
| Overall Usefulness of Course to Student's Life | 2.04 | 2.42 | 799 | -3.63*** |

For Attitude Items: 1.0=Positive Attitude; 5.0 = Negative Attitude
For Course Grades: 1 = E; 12 = A
For Expected Grades: 1 = A or A-; 5 = below a C

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$

TABLE 3

Comparison of 1982-83 and 1985-86 Mean Change Scores for Scales

| Scale | PSI-Based 1982-83 | PSI-Based 1985-86 | Lecture-Recitation 1982-83 | Self-Contained 1985-86 |
|---|---|---|---|---|
| Self-Perceptions of Communication Ability (SPCA) | 0.26 | 0.62 | 0.25 | 0.36 |
| Perceived Influence of Course on Communication Ability (PICA) | -0.20 | -0.40 | -0.20 | -0.58 |
| Personal Report of Communication Apprehension (PRCA) | 0.38 | 0.40 | 0.29 | 0.30 |
| Janis-Field Feelings of Inadequacy Scale (FIS) | -0.12 | -0.11 | -0.06 | -0.08 |

NOTE: For SPCA, the higher the number, the greater the perceived improvement.
For PICA, the higher the number, the greater the perceived influence.
For PRCA, the higher the number, the larger the decrease in anxiety.
For FIS, the higher the number, the larger the increase in self-esteem.